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10/590,699

05/23/2007

Ulrich Prechtel

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EXAMINER

ROJAS, BERNARD

ART UNIT

PAPER NUMBER

2832

MAIL DATE

DELIVERY MODE

12/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/590,699 | Applicant(s) PRECHTEL ET AL. | |
| | Examiner BERNARD ROJAS | Art Unit 2832 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08252006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17-21, 24-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Fork et al. [US 7,453,339].

Claim 17, Fork et al. discloses a MEMS switch having a bent switching element [figure 4], comprising: a signal conductor arranged [38] on a substrate [16]; an oblong-shaped switching element [48], which has a bent elastic bending area [58] and is fastened in a cantilevered manner [portion 56] on the substrate [figure 4]; and an

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electrode arrangement [36, 40] for generating an electrostatic force that acts upon the switching element and bends it toward the signal conductor; wherein, the switching element includes at least two switching arms [52] having a bent elastic bending area [58]; the switching arms are arranged on both sides of the signal conductor parallel thereto [figure 4]; free ends of the switching arms are mutually connected by a bridge [50] that is positioned over the signal conductor; the switching arms are configured such that under the effect of the electrostatic force, the respective elastic bending areas progressively approach the electrode arrangement in a direction parallel to the signal conductor [col. 6 lines 2-6]. It has been held that the recitation that the element is “configured such that” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchinson, 69 USPQ 1338.

Claim 18, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein the bridge forms a contact area [50 closes the gap 46 between signal line portions 42 and 44, col. 6 lines 2-6].

Claim 19, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein the electrode arrangement comprises at least one ground electrode arranged under the switching element flatly on the substrate to electrostatically attract the switching element [figure 4].

Claim 20, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein the electrode arrangement comprises one of a ground electrode

arranged on the substrate itself [36 and 40 are connected to ground while 52 is provided with a charge to actuate the switch 48].

Claim 21, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein the electrode arrangement extends parallel to the substrate surface in order to pull the switching element by the electrostatic force in its bending area progressively toward the substrate surface [figure 4].

Claim 24, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein the switching element is produced by thin-film technology [col. 2 lines 40-42].

Claim 25, Fork et al. discloses the high -frequency MEMS switch according to claim 17, wherein under the effect of the electrostatic force, the contact area comes in direct contact with the signal conductor [col. 6 lines 2-6].

Claim 26, Fork et al. discloses the high-frequency MEMS switch according to claim 17, wherein under the effect of the electrostatic force, the contact area takes up a minimal distance from the signal conductor[closes gap 46, [col. 2 lines 40-42].

Claims 27-29 and 31, the method of producing a high-frequency Mems switch is inherent in the product structure as described in claims 17-19, 21 and 24-26 above by Fork et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22, 23 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fork et al. [US 7,453,339].

Claim 22, discloses the claimed invention except for bent bending area is formed of bimorphic material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the material used in the bending area in order to adjust the spring characteristics of the cantilevers in order to customize the pull-in voltage.

Claims 23 and 30, discloses the claimed invention except for the bending area having a surface melted-on by laser heating for generating a tensile stress. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a different method to stress the cantilever since applicant has not disclosed that using laser heating solves any stated problem or is for any particular purpose and it

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appears that the invention would perform equally well with the pre-stress method used by Fork et al. which causes the cantilever to bend away from the substrate when no actuation current is present [figure 4].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BERNARD ROJAS whose telephone number is (571)272-1998. The examiner can normally be reached on M and W-F, 10:00-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elvin G Enad/

Supervisory Patent Examiner, Art Unit 2832

Br

/Bernard Rojas/

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Examiner, Art Unit 2832